

## CLAIMS

1. A production method for a powdered core, comprising:  
preparing a mixture including a soft magnetic powder and a resin powder;  
compacting the mixture into a predetermined shape to obtain a green compact; and  
heating the green compact;  
wherein the resin powder has a median size of not more than 50  $\mu\text{m}$ , and the resin powder amount is 0.01 to 5 vol%.
2. The production method for a powdered core according to claim 1, wherein the resin powder is made of a thermoplastic resin.
3. The production method for a powdered core according to claim 1, wherein the resin powder is a thermosetting resin with a median size of 30  $\mu\text{m}$  or less.
4. The production method for a powdered core according to claim 1, wherein the resin powder is one of thermosetting polyimide resins, thermoplastic polyimide resins, and polytetrafluoroethylene resins.
5. The production method for a powdered core according to claim 4, wherein the thermosetting polyimide resin powder amount is 0.18 to 2.4 vol%.
6. The production method for a powdered core according to claim 4,

wherein the thermoplastic polyimide resin powder amount is 0.59 to 2.4 vol% when the median size is not more than 50  $\mu\text{m}$ , and is 0.18 to 2.4 vol% when the median size is not more than 13  $\mu\text{m}$ .

7. The production method for a powdered core according to claim 4, wherein the polytetrafluoroethylene resin amount is 0.36 to 1.4 vol% when the median size is not more than 10  $\mu\text{m}$ , and is 0.11 to 1.4 vol% when the median size is not more than 5  $\mu\text{m}$ .

8. The production method for a powdered core according to claim 1, wherein the soft magnetic powder is an iron powder having a surface over which a phosphate compound is coated,

the mixture is compacted with a compacting pressure of 700 to 2000 MPa to obtain a green compact,

the green compact is subjected to a heating treatment;

and it is machined to have a predetermined shape.

9. The production method for a powdered core according to claim 8, wherein the compacting is performed by applying a lubricant powder for compacting to an inner surface of a compacting die assembly without adding a lubricant powder for compacting to the mixture.

10. A production method for a solenoid core for an engine fuel injection device, comprising:

preparing a mixture according to claim 1; and

compacting the mixture with a compacting pressure of 1000 to 2000 MPa to obtain a green compact with a cylindrical shape;

wherein the green compact is subjected to a heating treatment and it is machined to have a predetermined shape.